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FOREST & LANDSCAPE

DEVELOPMENT

NEWS

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Welcome to a new issue of the Development News published by Forest & Landscape Denmark (FLD), Faculty of Life Sciences, University of Copenhagen.

We report on our projects, education programmes and publications.

Among the various subjects in this issue I would like to point out the following projects:

- *Allanblackia stuhlmannii*, a native species of the Eastern Arc highlands of Tanzania, that has recently gained much interest due to its high potential for high quality seed oil.
- M.Sc. distance learning course in Tropical Tree Seed, which Forest & Landscape is offering in collaboration with Millennium Seed Bank, University of Kew.
- The CLUVA project, which aims to develop methods and knowledge for African cities to manage climate risks, to reduce vulnerabilities and to improve their coping capacity and resilience towards climate changes.

I hope that you will find the content interesting.

Yours sincerely
Dr. Niels Elers Koch, Director General

PROJECT NEWS

Allanblackia stuhlmannii research programme in Amani

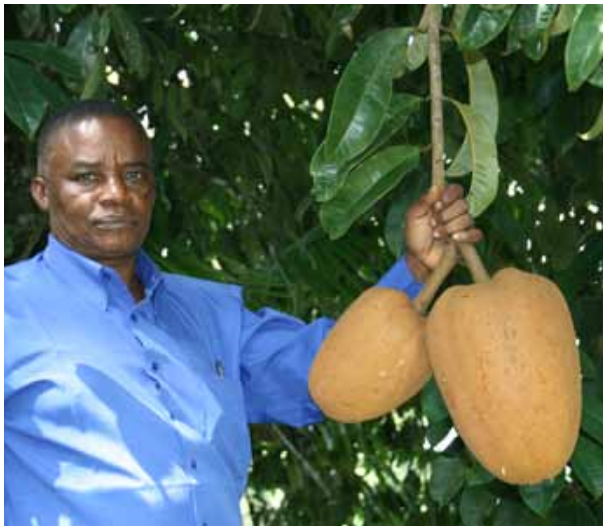
Allanblackia stuhlmannii, a native species of the Eastern Arc highlands of Tanzania, has recently gained much interest due to its high potential for high quality seed oil. A public-private partnership, Novella, including all potential stakeholders has been established. FLD is undertaking research activities in collaboration with the World Agroforestry Centre (ICRAF), who is a key member of Novella. Allanblackia is a remnant of the native rain forest, which is often left after forest clearing for farmland.

Farmers are getting a good price for the nuts, and farmers who own mature fruit producing trees on their farm can get a good income. However, long term sustainability of AB production is threatened because there is little new planting of the species on farmland, and farmers tend to eliminate unproductive male individuals. The latter may inevitable impair sustainability due to shortage of males for pollination. Regeneration of forest trees is limited primarily because of intensive seed collection.

ICRAF /FLD is conducting various research with the overall objective of leading to improved and more sustainable production of Allanblackia seed. Research on seed and vegetative propagation should lead to availability of

improved quality planting material and hopefully shortage of the unproductive juvenile stage, which is a constraint for farmers' adoptability. Studies on pollination and reproductive patterns will help making the right recommendations for proportion of males and females under farmland conditions.

Lars Schmidt, *lsc@life.ku.dk*



Abstract

Allanblackia, A New Tree Crop In Africa For The Global Food Industry: Market Development, Smallholder Cultivation And Biodiversity Management. Forests Trees and Livelihoods. 2010; vol. 19, p. 251-268. R. Jamnadass, I.K.Dawson, P.Anegbeh,; E.Asaah, A. Atangana, N.J. Cordeiro, H. Hendrickx, S. Henneh, C.A.C Kadu, C. Kattah, M. Misbah, A. Muchugi, M. Munjuga, L. Mwaura, H.J. Ndangalasi, C.S. Njau, S.K. Nyame, D. Ofori, T. Peprah, J. Russell, F. Rutatina, C. Sawe, L.H. Schmidt, Z. Tchoundjeu, T. Simons.

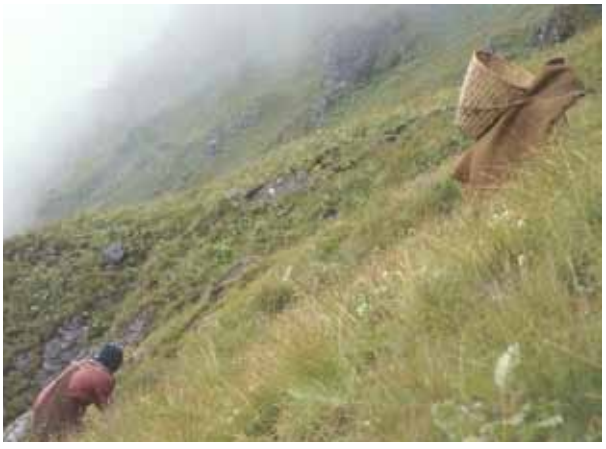
The seeds of Allanblackia trees produce edible oil with significant global market potential. Consequently, a private-public partnership involving Unilever and known as »Novella Africa« is engaged in the development of Allanblackia as a new crop in a number of African countries. The purpose of this partnership is to build a profitable and sustainable initiative for harvest, marketing and cultivation. Rural communities are directly involved and a participatory approach to domestication is being followed to maximise farmers' livelihood benefits.

This is the first time a multinational company has partnered in such an approach, and the initiative represents an example for the domestication of other new tree crops. Investing in good communication between partners is considered to be essential to success by ensuring trust and a common understanding of priorities. Progress to date has involved the establishment of market supply chains for oil, based firstly on wild harvest, and the initiation of cultivation by smallholders. Further work will involve the development of rural resource centres to deliver improved germplasm to growers. At the same time, these centres will provide other services such as market information, credit and access to buyers. Through this strategy it is foreseen that there will be progress towards the development of a market value chain which removes producers' constraints to profitable involvement. Furthermore, the diversification of farmers' cropping systems should have positive impacts for biodiversity and provide resilience in the face of climate change. Currently, the most important activity under the initiative is the promotion of Allanblackia planting, so that production constraints do not hamper market development.

Estimating the value of forests to the rural poor - new methods and data for better decision making

Rural households in developing countries harvest environmental resources in non-cultivated habitats ranging from natural forests to rivers. Products range from livestock fodder to fuelwood to medicinal plants and fish and generate income that contribute significantly to households' current consumption, or provide safety nets or even pathways out of poverty.

However, while such environmental resources are important to millions of poor households, there is no widely recognised approach to systematically collect such data. The Poverty Environment Network (PEN, www.cifor.cgiar.org/pen), facilitated by the Centre for International Forestry Research (CIFOR), was created in order to address this problem. Forest & Landscape Denmark has participated in PEN since the establishment in 2004.



An important component in FLD's involvement has been through the research project »Estimating the value of forests to the rural poor – new methods and data for better decision making«, undertaken from 2007-11 and funded by Danida through the Danish Consultative Research Committee for Development Research (FFU), with the participation of the Cambodia Development Resource Institute, the Forest and Research Institute of Ghana, the University of Ouagadougou in Burkina Faso and CIFOR.

This project has inter alia generated detailed income records for 1800 households in six sites in Cambodia, Burkina Faso and Ghana. Contextual reports have been prepared for all sites and databases have been established, checked and cleaned. The project is now entering the data analysis and writing phase and results are expected to be presented at an international conference that FLD will co-organise in June 2011.

Carsten Smith-Hall, *cso@life.ku.dk*

CLUVA - Climate change and urban vulnerability in Africa - New EU seventh framework project at Forest & Landscape

African cities and their fragile economies are unable to absorb the shocks caused by climate change. The social and economic impacts of natural disasters in the countries are growing and this is likely to be enhanced by the rapid expansion of the urban areas.

The CLUVA project aims to develop methods and knowledge for African cities to manage climate risks, to reduce vulnerabilities and to improve their coping capacity and resilience towards climate changes. The project brings together some of EU's leading climate experts, risk management experts, urban planners and social scientists with their African counterparts in an integrated research effort. The project will conduct prospective studies to assess risks and vulnerabilities of major urban areas in Africa. It will focus on assessing the environmental, social and economic impacts and the risks of climate changed induced hazards likely to affect urban areas at various time frames and under different conditions such as floods, sea-level rise, storm surges, droughts, heat waves, desertification, storms and fires.

The project will develop and propose innovative climate change risk adaptation strategies to render cities more resilient to possible future climate-change induced hazards and risks with strong interdisciplinary components.

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Do you have a specific question or a topic to discuss, please find a Development Expert at Forest & Landscape University of Copenhagen

http://en.sl.life.ku.dk/Forskning/Development Environment/Expert.aspx

News From Education Programmes

M.Sc. distance learning course in Tropical Tree Seed

Forest & Landscape, Denmark, - Division of Forest Genetic Resources, in collaboration with Millennium Seed Bank, University of Kew, is offering this specific course on Tropical Tree Seed during the period April-June 2011. The course is designed as a distance (e-) learning course, meaning that students can follow the course from their home country via their computer. Lectures, exercises, discussions and supervisions will all take place via the computer network. The course will cover major theoretical and practical aspects of tropical forest seed, including the theory of seed development, seed physiology, seed ecology, seed production, seed procurement and seed distribution. The course will be taught by seed experts from FLD and MSB respectively.

The official course description on KU-Life course database can be found on www.life.ku.dk. Select »English« in menu and follow following path: *www.life.ku.dk/English/education/for_students/teaching/course_descriptions.aspx*

Select course id 250085 or title Tropical Tree Seed. Full link: *www.kursusinfo.life.ku.dk/Kurser/250085.aspx*

Time and ECTS: 19th April to 25th June 2011 (9 weeks including exam project). The course counts for 7.5 ECTS.

Application: As this is an on-line course you will be enrolled as a »credit student«. As the course is to be launched during the 4th semester block, the application deadline will be 15th February 2011 with reply before 15th March. Please find the application form at this link: *www.life.ku.dk/English/education/Guest_Credit_Students.aspx*

Course /tuition fee: The rules of enrolment and procedure of application appears on following link *www.life.ku.dk/English/education/Guest_Credit_Students.aspx*

The tuition fee for students of EU/EEA is 200 DKK (€24) per ECTS, outside EU /EEA is €233 per ECTS. For this course, which is a 7,5 ECTS course, the fee is €24x7.5= €180 for EU/EEA students and €233x7.5= €1,745 or about US$2,200 for students outside EU/EEA.

Application for sponsorship: Students outside EU/EEA who are eligible to pay a high tuition fee may find participation in this course quite costly. We would therefore encourage students to seek sponsors nationally or via e.g. donor institutions or projects.

Course coordinator Lars Schmidt, *lsc@life.ku.dk*

New Ph.d thesis

On the 11th October Ander Søndergaard Larsen defended his PhD thesis **Gene flow and genetic structure in wild fruit trees: DNA-marker based studies of Adansonia digitata, Vitellaria paradoxa, Parkia biglobosa and Malus sylvestris**.

Gene flow is important in shaping the genetic diversity of a species. Gene flow helps maintain genetic diversity and continued adaptability to environmental changes. On the other hand, gene flow can also be counterproductive, when it leads to outcrossing depression and genetic swamping by hybridization with related taxa. The thesis studies gene flow and genetic structure of wild fruit tree species by application of DNA-based markers. The three first mentioned species are native to the African savanna while *Malus sylvestris* is a European endemic.

Microsatellite markers were developed and applied in studying pollen dispersal and spatial genetic structure of *A. digitata*. It was found that the outcrossing rates for individual trees were closely related to local population density. More isolated trees had lower outcrossing rates. Dispersal distances were short and immigration of pollen was found to be limited. In *V. paradoxa*, a method for estimating minimum seed dispersal by parentage analysis was applied. It was found that half the seeds were gravity dispersed, while the other half was secondarily dispersed – possibly by animal or human vectors. For *M. sylvestris*, a study of pollen dispersal was conducted that applied paternity inference based on a subsample of potential fathers. This allowed estimation of the dispersal kernel and provided knowledge about the mating system of this species. Finally, a study was conducted that investigated variation in leaf morphology of *P. biglobosa* over a longitudinal cline. The variation could not be described by climatic differences at the sampling locations. Geographical distribution of chlorotypes, however, suggested that the cline could be described by one or more events of spatial isolation. The thesis is concluded with suggestions for future work and development within the study area.

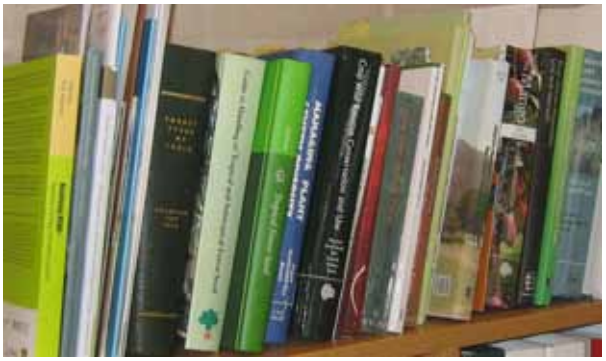
Anders Søndergaard Larsen, *anders.larsen@agrsci.dk*

Many of our Ph.D. students are writing their thesis on developing issues. You can find a list of our Ph.D students and their projects on

http://en.sl.life.ku.dk/Forskning/ForskerskolenREFOLANA/PhD_students.aspx

New publications

- G. Luziatelli Hansen, M. Sørensen, I. Theilade, P. Mølgaard. **Ashaninka medicinal plants: a case study from the native community of Bajo Quimiriki, Junin, Peru.** Journal of Ethnobiology and Ethnomedicine 6:21. 2010.
- T. So, I Theilade and B. Dell. **Conservation and utilization of threatened hardwood species through reforestation - an example of *Afzelia xylocarpa* (Kruz.) Craib and *Dalbergia cochinchinensis* Pierre in Cambodia**. Pacific Conservation Biology 16: 101-117. 2010.
- J. Ribot, J. F. Lund and T. Treue. **Democratic Decentralization in Sub-Saharan Africa: Its contribution to forest management, livelihoods, and enfranchisement**. Environmental Conservation 37:35-44. 2010.
- R. Jamnadass, I.K.Dawson, P.Anegbeh,; E.Asaah, A. Atangana, N.J. Cordeiro, H. Hendrickx, S. Henneh, C.A.C Kadu, C. Kattah, M. Misbah, A. Muchugi, M. Munjuga, L. Mwaura, H.J. Ndangalasi, C.S. Njau, S.K. Nyame, D. Ofori, T. Peprah, J. Russell, F. Rutatina, C. Sawe, L.H. Schmidt, Z. Tchoundjeu, T. Simons.: **Allanblackia, A New Tree Crop In Africa for The Global Food Industry: Market Development, Smallholder Cultivation And Biodiversity Management.Forests Trees and Livelihoods.** 2010; vol. 19, p. 251-268. (see abstract).
- Teaknet Bulletin no 3. October 2010: *Teaknet Bulletin*



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http://en.sl.life.ku.dk > Forskning > DevelopmentEnvironment > PUblications.aspx

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